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**CUSTOMER-ORIENTED APPROACH TO PRICING  
OF AGRICULTURAL MACHINER****V. SHCHERBAK<sup>1</sup>, S. MARCHENKO<sup>2</sup>**<sup>1</sup>Kyiv National University of Technologies and Design<sup>2</sup>Interregional Academy of Personnel Management**Keywords:**

logistics marketing pricing  
system, agricultural  
machinery manufacturer,  
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customer service.

**ABSTRACT**

The paper deals with the authors' research into substantiation of theoretical, methodological and practical principles of formation and implementation of a marketing logistics system of pricing of agricultural machinery manufacturers based on perception of the product value by agricultural machinery consumers. It substantiates the advisability of implementing a system of logistics support for marketing customer service policy in agricultural machinery industry produce markets, which helps manufacturers to gain sustainable competitive edges.

**Problem statement and its connection with important scientific and practical tasks.** Amid furtherance of market-oriented reforms in domestic economy, the nature and effectiveness of marketing activities of the agricultural machinery manufacturers depend significantly on improvement of the current market logistics pricing mechanism as regards sales of industrial goods to the agro-industrial sector. This is particularly significant today, when, due to financial instability within the country and an existing considerable disparity between agricultural product prices and prices of manufactured goods consumed in the agrarian sector of economy, most agricultural enterprises have lost their buying power. As a result, the market for agricultural machinery considerably contracted, which had an extremely negative impact on the situation in the agricultural machinery industry.

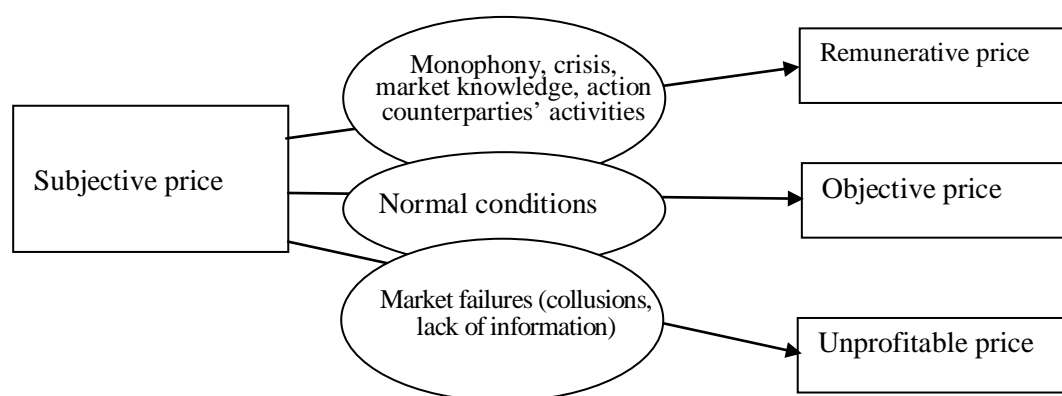
**Review of recent papers on the problem.** The problems of the marketing pricing process were studied in works by A. Alekseev [2]; V. Herasymchuk [4]; O. Zhehus [5]; F. Kotler [13]; S. Pogodayev[11] and others. Works by Y. Voskobiy[3]; E. Lukin [7]; N. Ovcharenko[10]; O. Ulianchenko [12] and others are devoted to issues of setting prices of agricultural machinery industry products.

**Unresolved parts of the problem.** Overall, the above-mentioned authors clearly outline the problem in question but do not determine the lines of its solution with due regard to the specifics of the agricultural machinery industry produce based on perception of the product value by agricultural machinery consumers.

There is no concept of setting prices for these products, which would take into account requirements of the consumers-agricultural producers with due consideration of their low solvency margin.

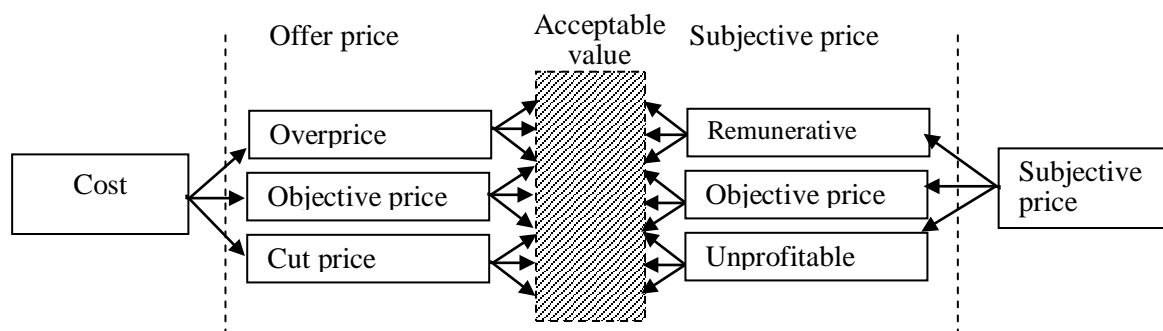
**The goal of research** is to improve the theoretical framework for and develop scientific and practical recommendations on assessment of the factors governing formation and implementation of an adaptive system of marketing formation of prices for agricultural machinery manufacturers based on the product value perceived by consumers.

**Key findings.** Customer focus is the basic prerequisite for effective pricing policy of any enterprise in a market economy. Pricing on the ground of perception of the product value by agricultural machinery consumers is based on the so-called commodity subjective price – dependence on subjective (consumer's preferences, machinery technological utilization conditions) and objective (overall price level, consumer's financial capacities to purchase a commodity) factors of assessment of an acceptable value in terms of money. The economic form of expression and method of determining a value to customer depend on the system of economic relations, on specific economic and technical conditions of purchasing and using a commodity. A diagram illustrating formation of a commodity subjective price is given in Fig.1:



*Fig. 1. The subjective price and acceptable value ratio, original development*

The technique for selection and practical use of customer value as a component of the pricing process is explained as part of the marketing mix, including the logistics approach, the constituents of which, taken together, constitute the net result of an enterprise performance. The general diagram of the mechanism of the cost and acceptable value impact (indirectly, in the form of a subjective price) on a commodity pricing is given in Fig. 2.



**Fig. 2. The mechanism of the cost and acceptable value impact on a commodity price, original development**

The suggested mechanism accommodates the economic categories of value and utility in the course of forming a commodity market price. The commodity price is composed of a sum of the offer price and subjective price taken as a proportion determined by the market-determined coefficients  $\alpha$  and  $\beta$ :

$$\text{Commodity price} = \alpha \times \text{Offer price} + \beta \times \text{Subjective price}, \quad (1)$$

where  $\alpha$  – a coefficient determined by a ratio of the commodity quality and cost;  $\beta$  – a coefficient determined by a supply-demand ratio;

$$\text{Offer price} = \alpha \times \text{Cost}. \quad (2)$$

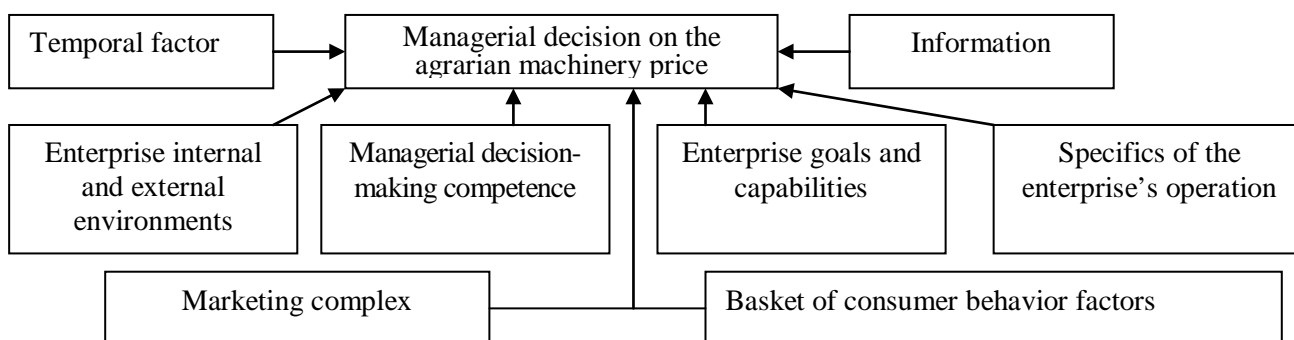
Due to the specifics of agricultural machinery as a commodity (seasonal use, substantial utility, mainly high cost, difficult to operate and maintain and the like), as well as consistent high demand for this commodity on the part of agricultural producers and lack or an extremely limited quantity of substitutes that accompany the process of its promotion, coefficient  $\alpha$  takes on a value at the level of 1 or more than 1, while coefficient  $\beta$  ranges within 0 and 1. Therefore, the agricultural machinery price formula appears as follows:

$$\text{Agricultural machinery price} = (\alpha \geq 1) \times O_p + (\beta \geq 0) \times S_p \quad (3)$$

Since agricultural machinery utility is, as a general rule, extremely high, then the commodity value formed as a ratio of utility to cost also has high values. The acceptable value, accordingly, is calculated using the following formula:

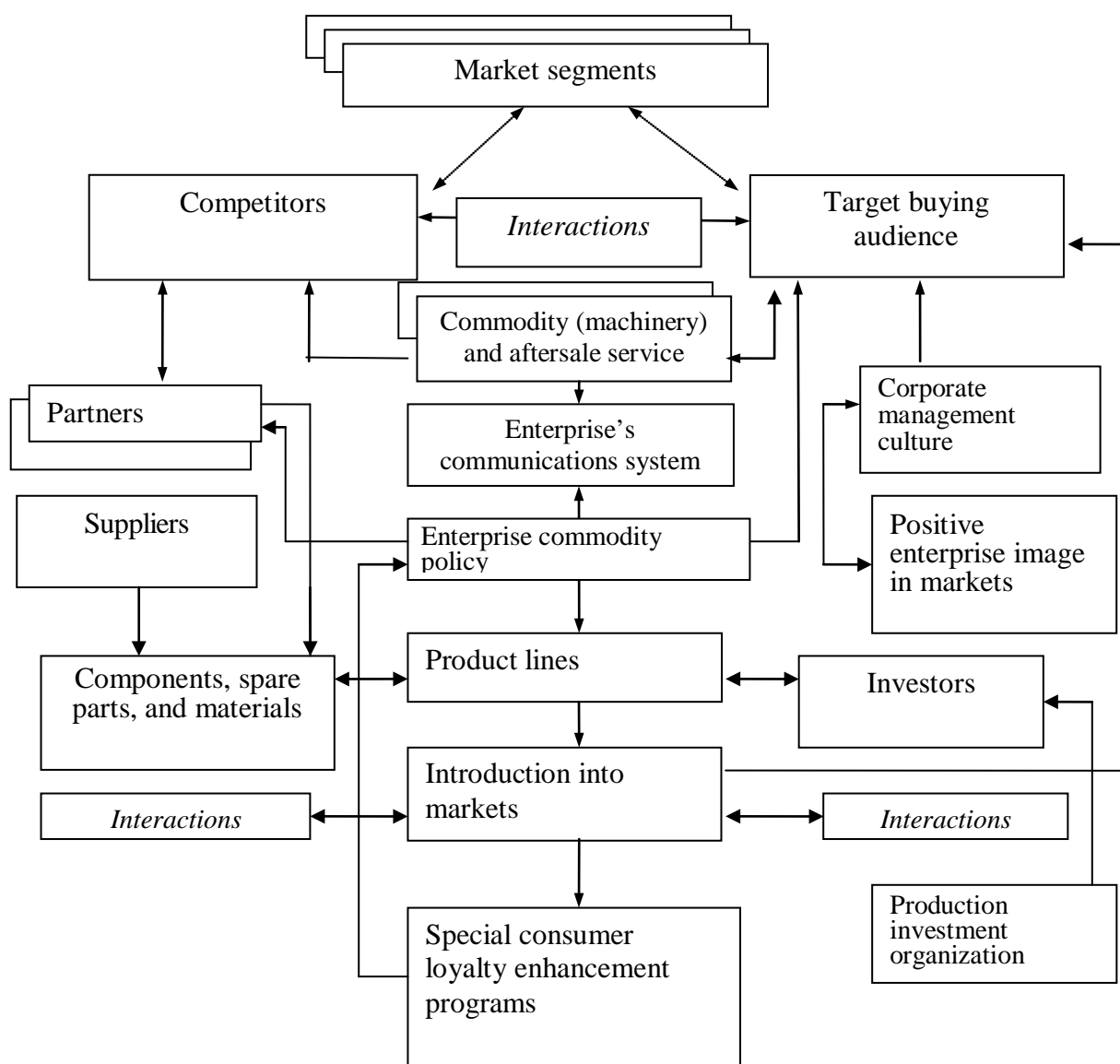
$$\text{Acceptable value} = \text{Consumer benefit} / \text{Offer price} \quad (4)$$

The magnitude of the commodity market price results, therefore, from interaction of the commodity cost and consumer utility (subjective price and offer price), the ratio of which is determined by the state of the market and economy as a whole. The formula developed as a consequence confirms the tentative assumptions of a synthetic mechanism of cost and utility interaction. Such an approach enables to distinguish the primary factors that have an impact on managerial decision-making at enterprises as to logistics pricing based on consumers' perception of product utility (Fig. 3).



**Fig. 3. The factors having an impact on managerial decision-making,**  
original development

The managerial decision-making model, which takes into consideration consumer behavior factors (The module “A managerial decision on the agrarian machinery price” – Fig. 3), stages of pricing substantiation based on perception of product utility by consumers rests on employment of the function-oriented structured analysis and design technique – SADT. The SADT technique (Structured Analysis and Design Technique), developed by Douglas T. Ross in 1969-1973, was created to design more general-purpose systems as compared with other structured methods (Fig. 4). The diagram given below represents a set of some already known models and new ones developed by the author in terms of their content in an attempt to build among them cause-and-effect relations that tell and impact on effective managerial decisions concerning pricing and introduction of agrarian machinery into market outlets. Substantiation of the pricing system based on perception of product utility by consumers of equipment and implements manufactured by appropriate enterprises through comprehensive combination of Ishikawa diagram and ABC analysis [1].

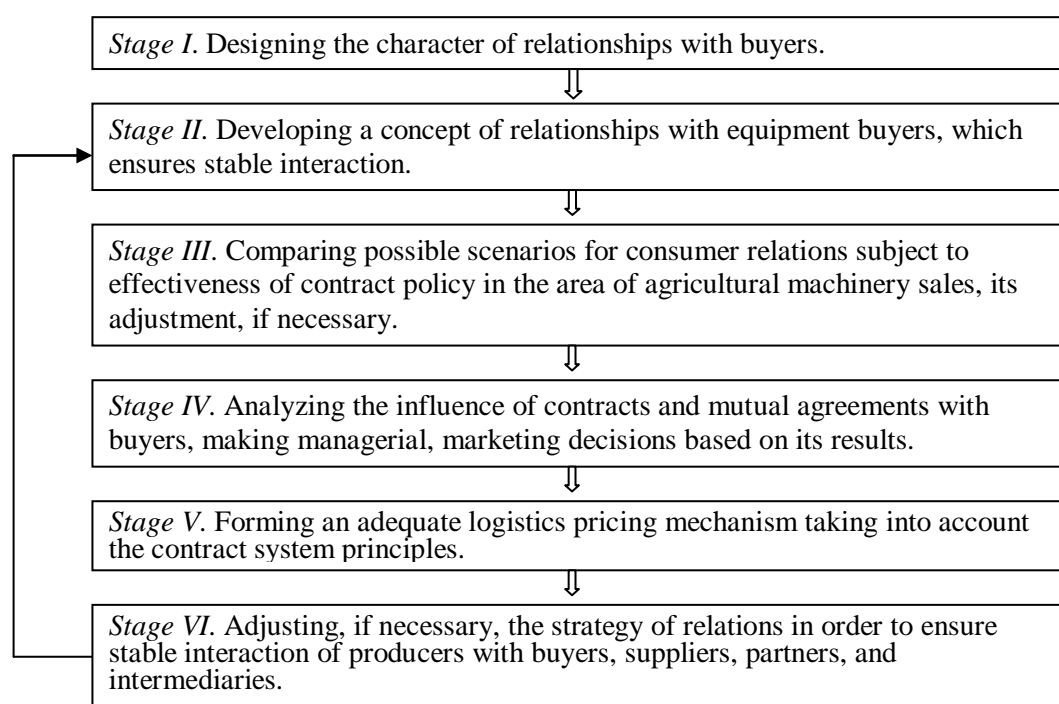


**Fig. 4. Diagram of interaction of market elements in the marketing context, original development**

The Ishikawa diagram is applied when developing and continuously improving products, as a tool ensuring a system approach to identification of factual root causes of problems (Alekseev [2]; Zhehus [5]). The Ishikawa diagram affords an opportunity to substantiate pricing based on perception of product utility by agricultural machinery consumers. The Ishikawa diagram is practically used in building dendrograms via the cluster analysis method through the “STATISTIKA 6” package.

Upon identification of a problem by building an Ishikawa diagram, it is important to determine areas for performance quality improvement and causes. The ABC analysis is the most common method in such case. The essence of the ABC analysis method is that it enables to classify a firm's resources in order of their importance. This analysis is one of the streamlining methods and can be applied in the area of activities of any enterprise. It rests upon the Pareto principle – 20% of all commodities generate 80% of turnover. With respect to the ABC analysis, the Pareto's law can run as follows: safe control of 20% of items enables to control the system by 80%, be it raw material and component stocks or the product line of an enterprise and so on [6; 8; 9].

Implementation of the approach developed as regards pricing based on perception of product utility by agricultural machinery consumers ensures stable and sustained interaction with buyers in line with general marketing policy and its specific modules: product, price, sales, communications (Ovcharenko, [10, p.188-193]) (Fig. 5).



**Fig. 5. Interaction of a producer with partners based on perception of product utility by agricultural machinery consumers, original development**

Operation of the systems in question, their control, adaptation, with account taken of changes in the external environment and development of the producer's internal capabilities, enables to build an effective marketing pricing system based on perception of product utility by agricultural machinery consumers.

Consequently, the suggested organizational-methodological approach in the context of marketing systems and communications interaction theory proves that communication strategies in relationship marketing coordinates come down to creation of a company's positive image resource, which ensures a synergistic effect due to establishment of integrated communication and logistics pricing networks. The special feature of marketing logistics pricing communication strategies that are "built in" the general interaction system in their differentiation by elements consists in: producer – buyers; producer – suppliers (equipment, components, and materials); producer – dealers; producer – competitors.

**Conclusions.** The specifics of forming marketing logistics pricing policy of agricultural machinery builders in the domestic market are as follows: the large majority of agricultural machinery consumers experience problems when purchasing necessary machines for a number of reasons, among which poor solvency takes center stage; agricultural producers see solution of this problem in raising prices for their products and in an appropriate incentive function of the state and society; more than half of customers point out to existing seasonality in machinery acquisition; the vast majority of customers use the price, quality and productivity criterion when acquiring machinery; only less than half of customers think the used agricultural machinery market competitive; foreign-manufactured products somewhat prevail in agricultural machinery acquired by domestic agricultural producers, while prices, as well as technical and quality parameters basically ensure the competitive ability of domestic products; there is no predominant sources of information on agricultural machinery offers.

### References

1. ABC- analiz [ABC analysis] [Electronic resource] (n.d.). *wikipedia. org* Retrieved from [ru.wikipedia. org/ wiki/ ABC-анализ](http://ru.wikipedia.org/wiki/ABC-анализ) 130.html [in Russian].
2. Alekseev, A. A. (2001). Marketynhovye pryntsyipy optymyzatsyy hlubyny assortymenta produktsyy [Marketing Principles for the Product Range Depth Optimization]. *Marketynh y marketynhovye yssledovanyya v Rossyy [Marketing and Market Research in Russia]*, 6, с. 4 – 12 [in Russian].
3. Voskobiy, Yu. P. (2012). Funktsionuvannia tsinovoho mekhanizmu v suchasnykh umovakh rozvytku ahrarnoho rynku [The pricing mechanism operation in the current context of the agrarian market development]. *Ekonomika APK*, 1, 185 – 187 [in Ukrainian].
4. Herasymchuk, V. V. & Boyko, O. V. (2007). Kompleksnyi marketynhovyi analiz diial'nosti pidpriemstv-vyrobnykiv produktsii sil's'kohospodars'koho mashynobuduvannia [Complex marketing analysis of agricultural machinery manufacturers activities]. *Ekonomichni nauky. Seriia "Ekonomika ta menedzhment". [Economic sciences. "Economy and management" Series]*, 4 (14), 12 – 16 [in Ukrainian].

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5. Zhehus, O. V. (2006). Formuvannia marketynhovo-orientovanoi tsinovoi [Formation of Marketing-Oriented Pricing Policy at Retail Trade polityky v pidpnyemstvakh rozdribnoi torhivli Enterprises]. *Candidate's thesis*. Kharkiv. Derzh. un-t kharchuvannia ta torhivli [in Ukrainian].
  6. Kupivlia material'no-tekhnichnykh resursiv dlia vyrobnychkykh potreb sil's'kohospodars'kymy pidpnyemstvamy u 2012 rotsi [Purchases of material and technical resources for manufacturing purposes of agricultural enterprises in 2012]. *Kiev: Statistical bulletin, 2013* [in Ukrainian].
  7. Lukun, E. V. (2008). Klasternyy analiz kak metod sehmentatsyy rynka sel'skokhozyaystvennoy tekhniky [Cluster analysis as an agricultural machinery market segmentation technique]. *Bulletin of the Altai State Agrarian University*, 8(46), 91 – 95 [in Russian].
  8. Metod «Dyahramma Ysykavy» [The Ishikawa Diagram Method] [Electronic resource] (n.d.). *inventech.ru* Retrieved from [www.inventech.ru/pub/methods/metod-0019](http://www.inventech.ru/pub/methods/metod-0019) [in Russian].
  9. Naiavnist' sil's'kohospodars'koi tekhniky ta enerhetychnykh potuzhnosti u sil's'komu hospodarstvi u 2012 rotsi [Availability of agricultural machinery and power capacities in the agricultural sector in 2012]. *Kiev: Statistical bulletin, 2013* [in Ukrainian].
  10. Ovcharenko, N. H. (2008). Yspol'zovanie marketynha vzaymodeistviia v polytyke prodvyzheniia kombainovoi tekhniky sel'khoztovaroproyzvodyteliam [The use of relationship marketing in combine machinery promotion policy designed for agricultural commodity producers]. *Economic bulletin of Rostov state university*, 6, Ch. 3, 188 – 193 [in Russian].
  11. Pogodayev, S. E. (2013). Marketing of works as a source of the new hybrid offerings in widened marketing of goods, works and services. *Journal of Business and Industrial Marketing*, 28 (8), 638-648.
  12. Ul'ianchenko, O. V. (2006). Formuvannia ta vykorystannia resursnoho potentsialu v ahrarnomu sektori: monohrafiia [Resource potential generation and utilization in the agrarian sector: monograph]. Kharkiv: KhNAU im. V. V. Dokuchayeva [in Ukrainian].
  13. Kotler, F. *Tsenoobrazovanye na osnove potrebytel'skoy tsennosti* [Pricing based on consumption value]. [Electronic recourse] About marketing. Retrieved from <http://www.bci-marketing.aha.ru/content/tsenoobrazovanie> [in Russian].